Response to Comments

on the

Final Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound, Connecticut and New York

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I. Introduction

This document provides the U.S. Environmental Protection Agency's responses to public comments received by the Agency concerning its March 2004,"Final Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound, Connecticut and New York" (FEIS). Although there is no legal requirement to provide written responses to comments on a Final Environmental Impact Statement, EPA is providing these responses as part of its public involvement process and in conjunction with final decision-making regarding dredged material disposal site designations.

Such final decision-making is represented in the Final Rule, which EPA is publishing in the Federal Register to designate two open-water dredged material disposal sites for the disposal of dredged material from harbors and navigation channels in central and western Long Island Sound in the states of Connecticut and New York (Final Rule). The two disposal sites are named the Central Long Island Sound disposal site (CLIS) and the Western Long Island Sound disposal site (WLIS), respectively. Designating these disposal sites is necessary to provide environmentally sound, open-water sites as possible alternatives for the future disposal of suitable dredged material from this region.

EPA has conducted the disposal site designation process consistent with the requirements of the Marine Protection, Research, and Sanctuaries Act (MPRSA), the Clean Water Act (CWA), the National Environmental Policy Act (NEPA), the Coastal Zone Management Act (CZMA), and other relevant statutes and regulations. The basis for this action is described in the FEIS. The FEIS identifies designation of the CLIS and WLIS dredged material disposal sites as the preferred alternatives among the range of options considered.

The site designations are intended to be effective for an indefinite period of time, but the sites are sized and located to accommodate the amount of dredged material projected to be generated over a 20-year period based on historical records and surveys of potential users, which is estimated to be 20 million cubic yards. The designation of these two disposal sites does not by itself authorize the disposal of dredged material from any particular project at either site. The designation of the CLIS and WLIS disposal sites simply makes those sites available if no practicable alternative to open-water disposal exists for a specific project, and if analysis of the dredged material from that project indicates that its characteristics are suitable for open-water disposal. Thus, each proposed dredging project will be evaluated as to whether there are practicable alternatives to open-water disposal and the dredged material from each proposed disposal project will be subjected to MPRSA and/or CWA sediment testing requirements to determine its suitability for possible open-water disposal at an approved site. Alternatives to open-water disposal that will be considered include upland disposal and beneficial uses such as beach renourishment. If less environmentally damaging practicable disposal alternatives exist, open-water disposal will not be allowed. In addition, the dredged material will undergo scientific analysis to determine its suitability for open-water disposal. EPA will not approve dredged material for open-water disposal if it determines that the material has the potential to cause significant adverse impacts to the marine environment and human health. The review

process for proposed disposal projects is discussed in more detail in the Final Rule and in the responses to comments below.

As EPA-designated dredged material disposal sites, CLIS and WLIS will also be subject to management and monitoring protocols to prevent the occurrence of unacceptable adverse environmental impacts. The administration of the disposal sites is described in the CLIS and WLIS Site Management and Monitoring Plans (SMMPs), which are incorporated in the FEIS as Appendix J. EPA may limit or close these sites to further disposal activity if information reveals unacceptable adverse impacts to the marine environment or human health from their use.

II. Background Regarding Disposal Site Designation and Public Participation in the Decision-Making Process

The FEIS describes the purpose and need for the designation of dredged material disposal sites in central and western Long Island Sound (the action), evaluates several alternatives to this action, and identifies EPA designation of the CLIS and WLIS disposal sites under the MPRSA as the preferred alternative.

The action is necessary because periodic dredging and dredged material disposal is unavoidably necessary to maintain safe navigation and marine commerce. As previously noted, dredging in the central and western regions of Long Island Sound is projected to generate approximately 20 million cubic yards of dredged material over the next 20 years. EPA evaluated potential alternatives to open-water disposal in Long Island Sound but determined that they were insufficient to meet the regional dredging needs. This does not remove the possibility that an alternative or alternatives to open-water disposal will be deemed adequate for some or all of the dredged material from a particular individual disposal project. EPA's designation of the CLIS and WLIS disposal sites, however, is intended to provide a potential open-water disposal alternative for dredged material regulated under the MPRSA that has been tested and determined environmentally suitable for open-water disposal. Sediments found to be unsuitable for open-water disposal will be required to seek alternatives other than the CLIS and WLIS disposal sites.

EPA's initial screening of alternatives, which involved input from other federal and state agencies, local governments, and the public, led to the determination that the open-water disposal sites were the most environmentally sound, cost-effective, and operationally feasible options for the large amount of dredged material expected to be found suitable for open-water disposal over the 20-year planning horizon. EPA's analysis of alternatives for disposing of dredged material from navigation channels and harbors in central and western Long Island Sound evaluated several different potential alternatives, including open-water disposal sites, upland disposal, beneficial uses, sediment treatment, and the no-action alternative. From this analysis EPA determined that open-water disposal sites, such as CLIS and WLIS, were the only alternatives that would provide sufficient practicable disposal capacity to meet long-term regional dredged material disposal needs.

EPA also evaluated several other open-water disposal site alternatives. This evaluation

considered multiple factors, such as reasonable distances to transport dredged material, the potential for adverse effects on important natural resources, and other measures indicating incompatibility for use as a disposal site. Specific factors evaluated included the sensitivity and value of natural resources, geographically limited habitats, fisheries and shellfisheries, shipping and navigation lanes, physical and environmental parameters, and economic and operational feasibility. The analysis was carried out in a tiered process. The final tier involved a detailed analysis of the no action alternative and the following four open-water alternative sites: CLIS, Milford, Bridgeport, and WLIS. Based on this analysis, CLIS and WLIS were identified as the preferred alternatives for designation as open-water dredged material disposal sites.

Although EPA is the agency authorized by the MPRSA to designate dredged material disposal sites, the U.S. Army Corps of Engineers (Corps) participated in the development of the EIS as a cooperating agency because it has knowledge concerning the region's dredging needs as well as technical expertise in assessing the environmental effects of dredging and disposal. The Corps also was able to bring significant financial and human resources to bear on this large and complex project. To take advantage of expertise held by other entities, and to ensure compliance with all applicable legal requirements, EPA also worked in close coordination with other federal agencies, including the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS), state environmental and coastal zone management agencies, local governments, and Indian Tribal governments, some of which participated as cooperating agencies.

Consistent with the public participation provisions of the NEPA regulations, as well as those of the MPRSA, EPA and the Corps conducted an extensive public involvement program throughout the development of the EIS. The agencies formed a "working group" comprising stakeholders from the Long Island Sound region and held numerous public meetings and workshops to provide the public with information on the EIS process-and the results of studies conducted in support of the EIS, and to give the public ample opportunity to provide input to the NEPA review effort. Detailed descriptions of the extensive public participation program conducted by EPA and the Corps are provided in Chapter 7 and Appendix A of the FEIS.

On June 3, 1999, EPA published a "Notice of Intent" in the Federal Register and mailed the notice to approximately 7000 interested individuals and organizations registered in the Long Island Sound EIS mailing list. The notice stated EPA's intent to prepare an EIS to, "consider the potential designation of one or more dredged material disposal sites in Long Island Sound," pursuant to MPRSA and CWA requirements. It further stated that the EIS would evaluate the four existing dredged material disposal sites that were active at the time (CLIS, WLIS, Cornfield Shoals, and New London), "as well as additional alternatives including other open-water disposal sites, other types of dredged material disposal and management, and the no action alternative." It also announced three public scoping meetings to be held later that month to explain the EIS process and solicit public input.

One of the first steps in the EIS process, conducted by EPA and the Corps in cooperation with other federal and state agencies, was the determination of a "Zone of Siting Feasibility" (ZSF). The ZSF is the geographic area from which reasonable and practicable dredged material disposal

site alternatives should be selected for evaluation. The EPA site designation guidance manual (EPA, 1986) describes the factors that should be considered in delineating the ZSF, and specifically recommends locating open-water disposal sites within an economically and operationally feasible radius from areas where dredging occurs. Other factors include navigational restrictions, political or other jurisdictional boundaries, distance to the edge of the continental shelf, the feasibility of surveillance and monitoring, and operation and transportation costs. In 1999, EPA, in cooperation with the Corps, NMFS, and USFWS, established the ZSF to include the entire Long Island Sound, from Throgs Neck at the western end to a line from Montauk Point to Block Island and a line from Block Island due north to the Rhode Island shoreline on the eastern end.

In June, 1999, EPA and the Corps held three public scoping meetings in Connecticut and New York to: (1) to inform the public about the project; (2) explain the respective roles of EPA and the Corps and the other cooperating or coordinating federal, state and tribal agencies, and the public, and (3) request comments on the draft scope of work for the EIS and related studies (detailed in Appendix A of the FEIS). The scoping meetings also were used to identify and record public concerns, issues, and environmental considerations for potential examination and analysis in the EIS. A total of approximately 130 people attended the three public scoping meetings.

EPA and the Corps conducted two series of public workshops in October, 1999 and April, 2000 in Connecticut and New York to discuss, and seek public input concerning the development of the EIS. Topics covered at the workshops included: identification of dredged material disposal alternatives; the evaluation criteria used to screen alternative sites; the process of screening and evaluating disposal sites; and a review of existing data and data collection needs. A total of approximately 200 people attended the four public workshops.

In 2000, EPA and the Corps established a volunteer public "working group" comprising individuals representing marine industries, boaters, environmental groups, fishing interests, and local governments to provide guidance in the development of the EIS. Five working group meetings were held between July, 2000 and November, 2002; attendance at these meetings ranged from 27 to 44 individuals, including agency staff and contractors. Topics addressed by the working group sessions included: potential environmental impacts to be assessed in the EIS; the results of field studies for lobster, fish, and benthic resources; fishing activities; upland disposal alternatives; dredging needs; economic analyses; and Geographic Information System (GIS) meta-databases.

Throughout the EIS development process, EPA and the Corps also met with other federal and state agencies, many of which were serving as cooperating or coordinating agencies, to keep them apprised of progress on the project and solicit input. Other agencies that participated regularly throughout the process included NMFS; USFWS; the Connecticut Department of Environmental Protection (CT DEP); the New York Department of State (NY DOS); and the New York Department of Environmental Conservation (NY DEC). Ten interagency meetings and teleconferences were held between March, 1999 and January, 2003 to review progress and get feedback, and EPA and the Corps were in regular contact with representatives of these

agencies throughout the EIS process.

In March, 2002, EPA published an Environmental News Notice announcing its intent to modify the ZSF and develop the EIS in two phases, so that an EIS addressing the central and western regions of Long Island Sound would be completed first, to be followed later by an EIS addressing the eastern region of the Sound. The revised boundaries of the ZSF for central and western Long Island Sound extended from the confluence of the East and Harlem rivers at Hell's Gate at the western end to a line from Mulberry Point in Guilford, CT to Mattituck Point in Mattituck, NY at the eastern end. The primary reasons for this modification in the scope of the EIS were: (1) the need to assess, in a timely manner, the appropriateness of maintaining continued use of a site in the central Long Island Sound region; (2) the geographical and environmental independence of the dredging and disposal needs, and alternatives for meeting those needs, of the central and western regions of Long Island Sound from those of eastern Long Island Sound; and (3) the fact that the change in scope would not preclude consideration of a comprehensive range of disposal alternatives, or otherwise predetermine the conclusions, for either the current EIS or for a future supplemental EIS to address eastern Long Island Sound.

EPA completed the "Draft Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound, Connecticut and New York" (DEIS) in early September, 2003. The DEIS identified the designation of CLIS and WLIS as long-term dredged material disposal sites under the MPRSA as the preferred alternative.

On September 12, 2003, EPA published in the Federal Register the proposed rule setting out and explaining the proposed disposal site designations (68 FR 53687), together with a notice of availability of the DEIS and draft SMMPs (68 FR 53730). EPA provided for a 45-day public review and comment period, until October 27, 2003. EPA also posted these documents on the EPA New England web site, and mailed notices and copies of the DEIS and supporting material to a large mailing list of agencies, tribes, organizations, members of Congress, and individual members of the public. The Federal Register notice also announced that EPA would hold four public hearings – afternoon and evening sessions on September 30, 2003 in Stony Brook, NY, and on October 1, 2003 in Stamford, CT – to present information on the DEIS and solicit oral and written comments.

On October 9, 2003, in response to several requests from the public to extend the comment period and hold another public hearing, EPA published a notice extending the public comment period by 21 days, to November 17, 2003 (68 FR 58296), and held another public hearing on November 13, 2003 in Stamford, CT.

On November 28, 2003 in response to requests from two members of Congress to extend the comment period and hold additional public hearings, EPA published a notice extending the public comment period by another 28 days, to December 15, 2003 (68 FR 66825), and held another public hearing on December 10, 2003 in Stony Brook, NY.

The comment period closed on December 15, 2003. In addition to the oral testimony transcribed at the public hearings, EPA received written comments from approximately 350 individuals and

organizations. EPA gave careful consideration to every comment received concerning the Draft EIS and presented responses to those comments in Appendix L of the FEIS. EPA also made certain revisions to its NEPA analysis, including better explanations of the purpose and need for the site designations and the alternatives analysis, based on the comments and information provided during the public comment period.

On April 9, 2004, EPA published a notice of availability of the FEIS in the Federal Register for a 30-day public review and comment period, ending on May 10, 2004 (69 FR 18898). EPA then published an amended notice extending the comment period to May 17, 2004 (69 FR 26818). EPA also issued a press release announcing the availability of the FEIS for public comment, posted the FEIS on the EPA New England web site, and mailed notices and/or copies of the FEIS and supporting material to a large mailing list of agencies, tribes, organizations, elected officials, and individual members of the public. EPA and the Corps also held two public information meetings, on May 4, 2004 in Islandia, NY, and May 5, 2004 in Stamford, CT, to explain how comments on the DEIS were addressed in the FEIS, and to answer questions about the decision. EPA is not required to solicit comment on a FEIS, but nonetheless did so to provide the public with further opportunity to comment on the decision and to ensure that the agency had every opportunity to consider the views of the public.

In response to requests from the public, EPA announced at the two public information meetings and through a press release issued on May 4, 2004, that it was extending the comment period by 15 days, to June 1, 2004. EPA also sent letters to members of the New York and Connecticut congressional delegations informing them of the extension.

The comment period for the FEIS closed on June 1, 2004. EPA received written comments from approximately 2900 individuals and organizations. EPA has given careful consideration to these comments, as well as to concerns raised by the New York Department of State and other agencies, in reaching a final decision to designate the two dredged material disposal sites.

III. Public Comments on the FEIS

Comments Received at the Public Meetings

EPA received comments on the FEIS at the two public information meetings held in May, 2004. A general overview of the types of comments received is provided below.

- Protecting Long Island Sound – Questions/comments were received regarding how the disposal of "contaminated and toxic" dredged material would be detrimental to the Sound and that its disposal would be contradictory to Long Island Sound's status as a protected estuary under the LIS Restoration Act. Individuals also asked how EPA can be sure there will be no negative impacts to the Sound from dredged material disposal in 10 to 20 years.

- Dredging Needs – Questions were received on the consistency of the dredging needs survey with historic and present needs. Others questioned the accuracy of the volumes of

disposed material reported in the past.

- Alternatives – A number of questions/comments were received regarding alternatives to open water disposal and their use. Generally people wanted to know why other alternatives including ocean sites and dredged material treatment technologies could not be used. Others asked about the steps that are followed to determine where material is disposed.

- Environmental Effects

    - Sediment Quality and Suitability - Several questions were received about the process for determining whether material is suitable for open-water disposal.

    - Physical Environment - Questions were raised regarding the potential migration of material away from disposal sites into other parts of the Sound.

    - Water Quality - Questions were received on the potential effects of dredged material disposal on water quality issues such as low dissolved oxygen (hypoxia) and beach closures due to high bacteria levels.

    - Fisheries/Lobsters - Several fishermen and other participants questioned whether the site will still be open for fishing once designated, and the long-term effects to worms, fish, lobsters, and shellfish. Others questioned whether studies have been conducted on the effects of discontinuing the dredging of harbors and rivers on the environment including fish and shellfish species.
    - Cumulative Impacts - Questions were raised about the cumulative impacts of dredged material disposal over time.

- Health Effects – Comments/Questions were raised about the concern that "toxic" materials would be disposed at the sites, possibly causing cancer and other illnesses in the populations residing around the Sound.

- Economics – Several comments were received regarding the perceived long-term economic impacts to local communities if the two disposal sites are designated, and conversely, if they are not designated. Questions regarding the types of costs factored into the economic assessments and alternative evaluations were also raised.

- Site Management and Monitoring – Several comments were made regarding studies on the migration of dredged materials from the sites, monitoring conducted at sites, timeframes for disposal at each site, and what type of circumstances would result in a site being closed to future disposal.

- Dredged Material Management Plan (DMMP) – One person noted that they wanted clearer direction regarding a DMMP.

- EIS Development Process - Several comments were also made on the content and availability of the EIS documents. Additional comments were made on public participation throughout the EIS process, such as the length of comment periods and the locations of meetings.

At the public information meetings, EPA and the Corps answered questions but did not respond to comments, since responses to comments on a Final EIS are not required by NEPA and because the agencies intended to provide written responses to public comments in subsequent documents, such as this one and the Final Rule. Many of the public comments also were submitted in writing and are summarized in the following section, which is then followed by EPA's responses.

Comments Received in Writing

EPA received approximately 2900 written comments on the FEIS, including letters and e-mail messages from elected officials, local governments, individual members of the public, and environmental/public interest groups. The vast majority of the comments were from citizens and organizations expressing concern that the designation would allow for the disposal of "toxic material" in Long Island Sound, and calling for a ban on all open-water disposal of dredged material. The remaining correspondence EPA received on the FEIS contained more detailed comments, some in opposition to, and others in support of, the site designations.

Some of the more detailed comments opposing the action cited specific environmental concerns, including: (1) the quality of dredged material to be disposed at CLIS and WLIS; (2) whether alternatives to open-water disposal were adequately evaluated; (3) the potential for adverse impacts to the marine environment (e.g., water quality, sediment quality, fisheries, cumulative impacts); (4) the physical suitability of the sites for disposal of dredged materials; (5) the potential for adverse public health impacts; (6) the adequacy of site management and monitoring to prevent adverse impacts to the marine environment and human health; and (7) the need for a comprehensive dredged material management plan for Long Island Sound that emphasizes alternatives to open-water disposal. These comments came primarily from environmental groups, local governments, and state agencies from New York.

There were also detailed comments supporting the site designations and urging the completion of the disposal site designation process, including letters from elected officials, local governments, and state agencies in Connecticut, marine trades associations, and marina owners, and yacht clubs from both states. Supporters of the action cited primarily economic reasons for needing to have disposal sites available, but also the potential adverse environmental impacts of not doing so, including increased potential for vessels running aground and spilling oil or other pollutants, and increased truck traffic and associated air pollution from needing to transport materials over land that are currently shipped over water.

Dredging and dredged material disposal in Long Island Sound has been an extremely controversial and complex issue for a long time. Considering that fact, it is not surprising that

EPA received many comments both supporting and opposing the designation of long-term, open-water dredged material disposal sites in the Sound. EPA reviewed and considered all the written comments as well as oral testimony and other comments received at the public hearings and meetings, and while it did not decide to reopen or supplement the FEIS, the agency has responded to the comments herein and in the Final Rule and believes that the final site designation action includes features that will address many of the concerns raised in those comments.

This Response to Comments document groups the comments received on the FEIS by category, summarizes the comments, and provides responses to them. The comments were organized into the following categories:

1. Protecting Long Island Sound;
2. Consistency with Laws;
3. Dredging Needs;
4. Alternatives;
5. Environmental Effects;
6. Endangered Species and Essential Fish Habitat;
7. Human Health Effects;
8. Economics;
9. Site Management and Monitoring Plans; and
10. Dredged Material Management Plans.

Responses have been developed for each of these categories as provided below.

1. Protecting Long Island Sound

EPA received many comments stating that allowing the disposal of dredged material in Long Island Sound could potentially offset the improvements in water quality and habitat that have been achieved at significant cost to the federal government and the states. EPA would not designate the CLIS and WLIS disposal sites if there was any evidence that their use for dredged material disposal would jeopardize or undercut improvements in water quality and habitat. EPA shares the public's concerns about restoring and protecting the Long Island Sound ecosystem while maintaining the economic vitality of the Sound's tourism, recreational, and water dependent industries.

EPA reiterates that the designation of the CLIS and WLIS disposal sites does not actually authorize the disposal of dredged material from any dredging projects. The designation simply makes those sites available for future consideration as potential disposal options, but the sites may be used only if there are no less environmentally damaging practicable alternatives for a particular project, and if sediment testing and analyses determine that the project's dredged material is suitable for open-water disposal. EPA is confident that proper application of the requirements of the MPRSA, the CWA and other applicable laws will ensure that disposal of dredged material at the designated sites will be consistent with protecting the Sound's valuable natural resources and the health of the citizens who enjoy and depend on the Sound, while also

supporting and enhancing the region's economy.

EPA acknowledges the commitment of the states of New York and Connecticut to restoring and protecting Long Island Sound, and has supported these efforts since the Agency was established in 1972. The federal government, through the EPA, has invested a great deal of money and effort to build and upgrade sewage treatment infrastructure through the construction grants and state revolving fund programs, to control polluted runoff through the Section 319 Nonpoint Source Program, to plan nitrogen reduction and habitat restoration efforts through the National Estuary Program's Long Island Sound Study (LISS), and most recently, to monitor and eliminate bacterial sources causing beach closures through the BEACH Act.

Since 1977, the Corps has conducted numerous studies of the effects of open-water dredged material disposal under the Disposal Area Monitoring System (DAMOS) program. The DAMOS program specifically focuses on managing and monitoring open-water dredged material disposal sites in New England. DAMOS is a multi-disciplinary environmental monitoring program managed by the Marine Analysis Section of the Regulatory Division of the Corps' New England District in Concord, Massachusetts. During its 27 years in operation, information collected by the DAMOS program has been shared with the scientific community and public through more than 150 reports and other contributions such as articles and brochures. The overall results of the DAMOS program demonstrate that open-water dredged material disposal can be conducted without endangering the environment.

All levels of government recognize that protecting the environment and ecology of Long Island Sound is of vital public importance. EPA and the Corps do not, however, believe that terminating all dredged material disposal in Long Island Sound is a viable option given the projected quantities of dredged material requiring disposal in the future and the present insufficiency of upland disposal capacity, beneficial reuse options, and sediment treatment technologies for handling all those materials. Still, each individual project will be assessed to determine whether some or all of its material could be disposed of at an upland location, beneficially used, or treated in some way to obviate the need for open-water disposal. Moreover, for dredged material that will be placed at one of the designated disposal sites, EPA has concluded that such disposal can be conducted in an environmentally sound manner in light of the characteristics of the sites and as long as the applicable MPRSA and/or Clean Water Act (CWA) requirements are properly applied.

2. Consistency with Laws

Some commenters questioned whether the site designation process was conducted in accordance with statutory and regulatory requirements. EPA has not only conducted the site designation process in strict accordance with federal law and regulations, but in several instances has gone beyond the minimum legal requirements. EPA conducted the site designations consistent with the requirements of the Marine Protection, Research, and Sanctuaries Act (MPRSA), the Clean Water Act (CWA), the National Environmental Policy Act (NEPA), the Coastal Zone Management Act (CZMA), the Endangered Species Act (ESA), and the Magnuson-Stevens Fishery Conservation Act (MSFCA), and any other applicable legal requirements.

Marine Protection, Research, and Sanctuaries Act (MPRSA); Clean Water Act (CWA)

The primary authorities that govern the aquatic disposal of dredged material in the United States are the MPRSA and CWA. All dredged material disposal activities in Long Island Sound, whether from federal or non-federal projects of any size, are subject to the requirements of Section 404 of the CWA, 33 U.S.C. § 1344. In addition, in 1980 the MPRSA was amended to add Section 106(f) to the statute. 33 U.S.C. § 1416 (f). This provision is commonly referred to as the "Ambro Amendment," named after former New York Congressman Jerome Ambro. MPRSA Section 106(f), 33 U.S.C. § 1416(f), was itself amended in 1990. As a result of this provision, the disposal of dredged material in Long Island Sound from all federal projects (projects carried out under the Corps civil works program or by other federal agencies), or from non-federal projects involving more than 25,000 cubic yards of material, is carried out in a manner to satisfy the requirements of both CWA Section 404 and the MPRSA. This includes both the authorization of specific disposal sites and the assessment of the suitability of specific dredged material for disposal. Disposal from non-federal projects involving less than 25,000 cubic yards of material, however, are subject only to the requirements of CWA Section 404.

Section 102(c) of the MPRSA, as amended, 33 U.S.C. § 1401, *et seq.*, gives the Administrator of EPA authority to designate sites where ocean disposal, also referred to interchangeably as ocean dumping, may be permitted. EPA's authority to designate ocean disposal sites for dredged material is explicitly stated in section 103(b) and 40 CFR 228.4(e) of the Ocean Dumping Regulations. On October 1, 1986, the Administrator delegated authority to designate dredged material disposal sites to the Regional Administrator of the EPA Region in which the sites are located. The CLIS and WLIS sites are located in Connecticut waters in Long Island Sound, and are therefore under the jurisdiction of the EPA New England Regional Office and subject to the Regional Administrator's authority to designate these sites.

The Ocean Dumping Regulations prescribe at 40 CFR §§ 228.5 and 228.6, respectively, general and specific criteria to guide the selection of disposal sites for final designation. EPA regulations at 40 CFR § 228.4(e)(1) promulgated under the MPRSA require, among other things, that EPA designate any disposal sites by promulgation in 40 CFR Part 228. Ocean dumping sites designated on a final basis are promulgated at 40 CFR § 228.15. Section 102(c) of the MPRSA and 40 CFR § 228.3 also establish requirements for EPA's ongoing management and monitoring, in conjunction with the Corps, of the disposal sites designated by EPA to ensure that unacceptable~~,~~ adverse environmental impacts do not occur. As described in the FEIS and in the final rule, EPA has determined that the CLIS and WLIS disposal sites comply with the five general criteria and the 11 specific criteria in the regulations, and has established site management and monitoring plans for both sites.

National Environmental Policy Act (NEPA)

NEPA requires analysis of the potential environmental effects of proposed federal agency actions and their alternatives so as to ensure that these effects, and the differences in effects from different alternatives, are understood in order to facilitate avoiding or minimizing any adverse effects of proposed actions, and to help restore and enhance environmental quality (40 CFR § 6.100(a)). NEPA requires substantial public involvement throughout the decision-making

process (40 CFR 6.400(a)). Section 102(c) of NEPA, 42 U.S.C. § 4321, *et seq.*, requires federal agencies to prepare an EIS for major federal actions significantly affecting the quality of the human environment. An EIS should assess: (1) the environmental impact of the proposed action; (2) any adverse environmental effects which cannot be avoided should the proposal be implemented; (3) reasonable alternatives to the proposed action; (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Although site designations conducted by EPA under its MPRSA authorities have been determined to be "functionally equivalent" to NEPA, so that the statutory requirement to prepare an EIS does not apply, it is the policy of EPA to voluntarily follow NEPA procedures when designating ocean dumping sites **(**63 FR 58045). Consistent with this policy, and as described above, EPA has followed the NEPA process and undertaken NEPA analyses as part of its decision-making process for the disposal site designations. Thus, EPA has, among other things, published a Notice of Intent to prepare an EIS, held public scoping meetings regarding the EIS, published a Draft EIS for public review and comment, and in March, 2004 published a Final EIS, including responses to public comments on the Draft EIS. The EIS considers the environmental effects of designating dredged material disposal sites in central and western Long Island Sound, and of various alternative approaches to managing dredging needs, including the "no action" alternative. Consistent with the public participation provisions of the NEPA regulations, as well as those of the MPRSA, EPA and the Corps conducted an extensive public involvement program throughout the development of the FEIS. Federal agencies also prepare a public record of decision (ROD) at the time of their decision on any action for which an FEIS has been prepared. For NEPA purposes, the Final Rule will serve as EPA's ROD for the site designations. This is explained in the Final Rule.

Coastal Zone Management Act (CZMA)

The CZMA authorizes states to establish coastal zone management programs to develop and enforce policies to protect their coastal resources and uses. Section 307 of the CZMA requires federal agencies to ensure that any federal activity within or outside the coastal zone that affects any land or water use or natural resource of a particular state's coastal zone is, to the maximum extent practicable, carried out in a manner consistent with the enforceable policies of the approved coastal zone management program for that state. The CZMA and its implementing regulations establish specific time frames for the consistency determination process for a federal activity (16 U.S.C. 1456(c)(1)(C) and 16 CFR 930.36(b)(1)), requiring a federal agency to provide its consistency determination to the potentially affected state(s) "at least 90 days before final approval of the federal agency activity," unless the federal and state agencies agree on a different notification schedule. Once the determination is provided, the state then has 60 days from receipt to respond. The state also can request extensions to the 60-day review period and federal agencies are required to approve at least one extension of up to 15 days, and may approve additional and longer extensions based on a consideration of the complexity and magnitude of the information to be evaluated.

EPA reviewed the federally approved Connecticut and New York CZM Programs and

Policies and determined that the designation of the CLIS and WLIS disposal sites would be consistent with the enforceable policies of the both states' programs.

On January 22, 2004, EPA submitted its coastal zone consistency determination to the CT DEP Office of Long Island Sound Programs (OLISP), which administers the state's coastal zone management program. CT DEP OLISP concurred with EPA's determination in a letter dated April 5, 2004.

On March 8, 2004, EPA submitted a coastal zone consistency determination to the NY Department of State's (NY DOS) Division of Coastal Resources (DCR), which administers the New York Coastal Zone Management Program, for a 60-day review period-ending on May 6, 2004. On April 13, 2004, EPA received a letter from the NY DOS confirming receipt of the consistency determination on March 8, 2004, and that the state's 60-day review began on that date. The NY DOS also requested a 15-day extension to the review period to accommodate its public review process and coordination with other state and local agencies, and stated that with the 15-day extension, it would provide EPA with its concurrence with, or objection to, the consistency determination on or before May 21, 2004. On May 7, 2004 EPA sent a letter granting the 15-day extension.

On May 6, 2004, EPA received a letter dated April 30, 2004 from the NY DOS requesting EPA to withdraw its consistency determination on the grounds that the state had insufficient information on which to base its review. In a letter dated May 20, 2004, EPA rejected New York's request that it withdraw its determination, stating that the agency had met the CZMA requirements and had provided NY DOS with enough information to make its decision. EPA also granted an additional extension of 15 days, to June 5, 2004 to give NY DOS additional time to conduct its review. EPA also offered to meet with the NY DOS to explain the basis for EPA's determination that the site designations were consistent with New York's Coastal Zone Management Program.

On June 3, 2004, EPA received a letter from the NY DOS objecting to EPA's designation of CLIS and WLIS, and concluding that the action is not consistent with the enforceable policies of New York's Coastal Management Program. EPA has responded to the NY DOS's letter in the Final Rule and a memorandum referenced in the Final Rule.

While EPA has determined that the site designations are consistent with the enforceable policies of the New York Coastal Zone Management Program, EPA has also taken the environmental concerns raised by NY DOS very seriously and promptly began working with NY DOS and other interested agencies both to ensure a full understanding of the issues and concerns raised by the state and to try to develop a plan for resolving them. Specifically, EPA requested assistance from the National Oceanic and Atmospheric Administration (NOAA) Office of Coastal Resource Management (OCRM), which administers the CZM Program for the Federal Government, to facilitate discussions with the NY DOS, as well as the Connecticut DEP and the Corps, to try to find a way to address New York's concerns that would still allow EPA to designate the CLIS and WLIS disposal sites to serve the public need for environmentally-sound, economically-viable dredged material disposal alternatives.

These agencies have held numerous meetings and conference calls in an effort to resolve their differences.

To address two of New York's most important issues, EPA has already begun to work with the states and the Corps on a regional dredged material management plan, which will include a further in-depth planning analysis of upland disposal options and other alternatives to open-water disposal. EPA also has begun to work with the Corps and the states on the potential development of coordinated review procedures for evaluating alternatives to open-water disposal during individual dredging project permit reviews that occur before the DMMP is completed. These discussions are ongoing at the time these Responses to Comments are being drafted. These efforts should reach resolution by the time the Final Rule is being drafted and the results will be described in more detail there.

3. Dredging Needs

A variety of comments were received from municipalities, marinas, and concerned citizens on the need for dredging and subsequent open-water dredged material disposal. Many of these letters expressed support for the designation, citing specific dredging needs for which an environmentally sound, cost-effective means of disposal would be required. For example, many of the municipalities noted that not all harbors and channels are maintained by the federal government, which means that local governments and businesses must carry the cost of dredging and disposal (see the Economic Issues section). Of the municipalities providing comments, all located in Connecticut expressed support for the disposal site designations, while input from the New York communities was mixed, with some supporting and others opposing.

Periodic dredging and, therefore, dredged material disposal are essential for ensuring safe navigation and facilitating marine commerce. Periodic dredging of certain parts of the nation's waterways provides many benefits. The dredging of shipping channels not only benefits those employed in shipping and related industries, but also benefits society at large through the contributions of shipping to the movement of goods and services through the economy of the Long Island Sound region and the Nation. Without adequately accessible harbors, materials would need, when possible, to be shipped over land. Although land-based shipping does not require dredging, it has other adverse environmental ramifications, such as increased air pollution from truck and train emissions, increased threat of accidents and related pollutant spills, and the possibility of increased roadway construction to accommodate greater vehicle traffic. (Such roadway construction can itself cause environmental damage.)

Some commenters requested further clarification on the Corps' estimate of the volume of dredged material that will require disposal in central and western Long Island Sound over the next 20 years. Some expressed concern about the magnitude of the Corps' estimate of 20 million cubic yards. Some suggested that the estimated project volumes were significantly higher than had been generated historically and expressed concern that these large volumes of material would have a greater impact on the disposal areas or might not be contained within the designated sites.

The Corp's projections of future dredging needs, anticipated volumes, and site capacities are reasonable and are based on the Corps' records of historic use of the sites, surveys of potential users of the sites, and extensive knowledge of the physical characteristics of the sites. In fact, the actual amount that may ultimately be disposed at the open-water disposal sites is probably less than the Corps' estimate of 20 million cubic yards because sediment testing will likely determine that some of the dredged material is unsuitable for open-water disposal and/or some material may be used in alternatives to open water disposal such as beach nourishment and other beneficial uses (FEIS, p. 2-6).

Comments also suggested that the future amount of dredging and dredged material disposal could be reduced through the development of best management practices (BMPs) to reduce erosion and sedimentation in the rivers and streams that are tributary to Long Island Sound harbors. EPA agrees that the implementation of BMPs in coastal watersheds can lead to some reductions in sediment loads, but erosion and sedimentation occur naturally even in completely undeveloped watersheds, and sediments in harbors and navigation channels are constantly shifting due to tidal action and currents. EPA, in conjunction with the states, administers several regulatory and voluntary programs to reduce sediment and other pollutant loads, including the National Pollutant Discharge Elimination System (NPDES) stormwater permitting and the nonpoint source management programs. These programs, respectively, either require or encourage the implementation of BMPs to reduce erosion and sedimentation caused by construction and agricultural practices. Nevertheless, the diffuse nature of these sediment sources and the fact that land use is regulated at the local level in New England make this a difficult pollutant to control, and will not obviate the need for dredging in the foreseeable future.

Regarding comments questioning the need for long-term, open-water dredged material disposal sites, failure to designate sites in Long Island Sound would have significant negative consequences. EPA's analysis of alternatives to open-water disposal determined that the capacity of those alternatives was insufficient for the quantity of dredged material projected to be generated over the next 20 years. Public comments did not identify any reasonable alternatives to open-water disposal that were capable of meeting this long-term disposal need. As a result, EPA concluded that it was necessary to study open-water disposal sites to determine if any appropriate sites for designation could be identified.

When it comes to open-water disposal of dredged material, EPA believes it is generally preferable from an environmental perspective to dispose of the material in only a few discrete locations in order to minimize any potential adverse impacts on the surrounding marine environment, and to facilitate site management and monitoring. See, generally, 40 C.F.R. § 228.5(d) and (e) (disposal site area should be minimized to localize any effects and facilitate monitoring, and disposal should be focused at historically used disposal sites when feasible). Given the continuing need for dredged material disposal sites, the expiration of the site-selection period for the CLIS site, and the impending expiration of the three remaining short-term sites in Long Island Sound that were selected by the Corps, the Corps would need to select new disposal sites that could only be used for a maximum of two five-years periods in order to authorize open-water disposal. Over time, such an approach would result in the proliferation of disposal sites throughout the Sound, which EPA believes is less desirable from an environmental protection

standpoint. It also could cause adverse economic impacts to the federal government and private dredging interests due to delays and uncertainty associated with either the limited disposal capacity at short-term, Corps-selected sites or the unavailability of such sites (see Section 5.4 of the FEIS). Finally, Congress has expressed a preference for dredged material at EPA-designated disposal sites, rather than Corps-selected sites, when use of the former is feasible and open-water disposal is necessary. See MPRSA § 1413(b).

4. Alternatives

Several comments stated that EPA failed to give adequate consideration to alternatives to open-water disposal of dredged material in Long Island Sound. As part of the EIS process, EPA conducted an analysis of alternatives for disposing of dredged material that included consideration of several different potential open-water disposal sites, upland disposal, beneficial uses, containment facilities, treatment technologies, and the no action alternative. The initial screening of alternatives, which involved input from other federal and state agencies, local governments, and the public, led to the determination that the capacity of non-open-water alternatives was insufficient for the quantity of dredged material projected to be generated in the study area over the 20-year planning horizon. Public comments also did not identify any specific alternative or alternatives to open-water disposal that would meet this long-term need. Following this determination, EPA focused its alternatives analysis on evaluating open-water sites for potential designation as dredged material disposal sites. At the same time, as explained previously, alternatives to open-water disposal would still have to be analyzed, and might be feasible and mandated, for specific individual dredging projects.

Following is a summary of each of the alternatives to open-water disposal of dredged material in Long Island Sound that was evaluated by EPA in the EIS; and a more detailed description can be found in Section 3.3 of the FEIS and Appendices C and D.

Open-Water Disposal Alternatives to CLIS and WLIS

At present, the only designated open-water disposal alternatives in the general vicinity of the central and western Long Island Sound region are the Historic Area Remediation Site (HARS), which is located 7.7 nautical miles south of Rockaway, NY, and 3.5 nautical miles east of Highlands, NJ, and the recently designated Rhode Island Sound Disposal Site, which is located nine nautical miles south of Point Judith, RI, and 6.5 nautical miles east of Block Island, RI. As noted in Section 3.2.2 of the FEIS, both of these options are a significant distance from the harbors of western and central Long Island Sound (between 65 nautical miles [120 kilometers] and 92 nautical miles [170 kilometers] by sea haul from western and central Long Island Sound harbors). As discussed in detail in the FEIS under sections dealing with the No Action Alternative, use of these sites was not considered practical as a long-term disposal site due to the long hauling distance and associated increased costs and environmental risks for disposal at these sites.

Under MPRSA § 102(a)(I) and 40 C.F.R. § 228.5(e), when considering the possibility of designating a dredged material disposal site, EPA must consider the option of designating a site beyond the edge of the continental shelf. Some public comments also suggested that such an

option be considered, but none offered a specific location that would be suitable for use. EPA considered the option of disposal sites beyond the edge of the continental shelf but determined that this option did not provide a reasonable alternative for meeting the needs of the central and western portions of Long Island Sound. Unlike some areas of the country where the edge of the continental shelf is located close to shore, it lies about 61 nautical miles (113 kilometers) south of Montauk Point, NY, the nearest location on Long Island. A site located beyond the continental shelf would be a nearly 118-nautical mile (218 kilometers) haul from New Haven and nearly 140 nautical miles (259 kilometers) from Mamaroneck Harbor.

During the assessment of all of these sites, the significant distances associated with hauling dredged material outside of Long Island Sound rendered these areas economically and operationally infeasible for site designation. Hauling such long distances is far more expensive due to factors such as increased fuel costs and hours of labor. Moreover, these long distances would make completion of a dredging project take substantially longer unless correspondingly more disposal vessels and dredges are used, which would, again, substantially increase project costs. Furthermore, increased haul distances also increase the likelihood of interaction between disposal tows and other navigation (including shipping, fishing and military uses), as well as between tows and marine life, including endangered species. Disposal tows are far more likely to encounter endangered species such as sea turtles and whales outside of Long Island Sound than on tows to sites within the Sound. Longer haul distances also increase the risk of short dumps due to mechanical failure or vessel loss, therefore increasing the potential for environmental impact. Finally, longer haul distances also increase the amount of fossil fuels used for, and the air emissions from, towing scows. Therefore, these distant disposal site options were not considered to be reasonable alternatives to the options within the central and western regions of the Sound.-

Alternatives to Open-Water Dredged Material Disposal

EPA evaluated a variety of alternatives to open-water disposal for managing the volume of dredged material projected for the central and western regions of Long Island Sound over the next 20 years. EPA found no reasonably foreseeable alternative or alternatives that would be practicable for handling the required volume of material. In addition, no such alternatives were identified by any commenter. Therefore, EPA concluded that there was a need for designating long-term open-water disposal sites if a site or sites could be identified that would meet the environmental criteria from applicable laws.

As explained previously, however, designation of open-water disposal sites does not by any means eliminate the possibility that particular projects might have to manage some or all of their dredged material using an alternative to open-water disposal. This is because each project that proposes open-water disposal is subject to an evaluation of the *need* for open-water disposal. See 40 C.F.R. Part 227, Subpart C ("Need for Ocean Dumping"). This evaluation includes consideration of a range of alternatives to open-water disposal. See 40 C.F.R. § 227.15(c). See also 40 C.F.R. § 227.16(b) (test for practicability of alternatives to open-water disposal). Although EPA did not find practicable alternatives to open-water disposal sufficient to obviate the need for designation of the CLIS and WLIS disposal sites, such alternatives might be practicable and required for some or all of the material from individual future dredging projects

depending on the characteristics of the dredged material, the location of the project, and the future development of alternatives to open-water disposal. As discussed further below, the development of a regional dredged material management plan by the Corps and the states, with assistance from EPA and the involvement of the public, should enhance the future development and consideration of alternatives to open-water disposal and help, whenever possible, to match any such alternatives with the quantity and quality of dredged material that they are capable of handling.

EPA's assessment of alternatives to open-water disposal in the EIS is described below.

Upland Disposal Sites: EPA and the Corps investigated upland disposal alternatives in the Long Island Sound region as part of the EIS process (see Section 3.2.3 and Appendix C of the FEIS). Before beginning the upland disposal alternatives assessment, EPA and the Corps presented to the public during a series of workshops in April 2000 their proposed approach for evaluating upland disposal and beneficial use sites. Based on those meetings, nearly 20 evaluation factors were identified for consideration when determining if a specific opportunity existed for disposal, including:

1. Threatened and Endangered Species
2. Cultural/Archaeological Resource Sites or Historic Districts
3. Conservation, Recreation and Open Space Areas
4. Navigation Considerations
5. Existing Habitat Types
6. Commercial and Recreational Fisheries
7. Site Characteristics
8. Site Accessibility
9. Engineering Considerations
10. Site Use Conflicts
11. Degree of Benefit
12. Duration of Potential Adverse Impacts
13. Economics
14. Groundwater Quality
15. Surface Water Quality
16. Present and Projected Land Use, Including Adjacent Areas
17. Availability for Use
18. Socioeconomic/Environmental Justice
19. Duration of Impacts

The review of existing landfills and other possible upland disposal or beneficial use sites, using these evaluation factors, found no specific site or sites of sufficient capacity that could be permitted for long-term use as a regional disposal alternative for the central and western Long Island Sound region. Some of the management options, such as capping and remediation at sanitary landfills and brownfield sites, reclamation of sand and gravel pits and other large-scale landscaping applications, and placement as structural fill for construction sites, initially appeared to be promising, but upon further investigation numerous obstacles to their use were discovered.

These obstacles included: limited capacity; restrictions on the type and quality of material that could be accepted; restrictions on the source of material (e.g., local or regional) that could be accepted; limited timeframe within which material was potentially needed; and the significant costs and other issues associated with both de-watering or otherwise treating the material and transporting it to upland sites.

For example, of the approximately 260 landfills in Connecticut, all but 35 have been closed and capped following CT DEP requirements. Of the 35 that are still active and open, only two have additional capacity, both of which have restrictions on the type of material accepted (e.g., solid waste, bulky waste, construction and demolition debris), and one of which is limited to use by local municipalities (CT DEP, 2005). Due to the requirements of the Long Island Landfill Law and state solid waste management regulations (6 NYCRR Part 360-8), upland disposal options on Long Island are limited. Some dredged material could possibly be approved for beneficial use at the Brookhaven landfill in Suffolk County, but not enough to meet all the region's dredged material management needs. Meanwhile, the potential for use at other landfills identified in this area is low. Moving away from Long Island Sound, there are landfills in the New York City area that are undergoing closure and require large quantities of suitable material of an appropriate soil classification. Therefore, smaller dredging projects (which comprise the majority of dredging needs in Westchester and Nassau counties) are unlikely to compete for landfill space with larger Corps projects in the New York/New Jersey Harbor area, even assuming the material in question had the required grain size. In addition, barging or trucking dredged material from the Sound to landfills around New York City could be prohibitively expensive for some projects and present serious navigational or traffic issues.

For the brownfield pilot sites in Connecticut that were identified as having a high potential for using dredged material, that potential was limited (based on current information) by the proposed redevelopment schedules for those projects, which needed material within 1-2 years. Although many other brownfield pilots were identified as potential sites for the beneficial use of dredged material, the lack of sufficient information relative to site conditions prevented a reasonably sound assessment of their true potential to use dredged material. The use potential of EPA brownfield pilots identified within the New York portion of the project area was found to be greatest in the City of Yonkers, while opportunities at other brownfield pilots in New York City, North Hempstead, and Glen Cove were either low or unknown at the time the assessment was conducted.

Although adequate long-term management options could not be found, this does not remove the requirement for individual port and harbor dredging projects to evaluate the potential for upland disposal and reuse alternatives for specific projects. The information generated through the EIS process should be useful for future consideration for such projects.

Beneficial Uses: In developing the EIS, EPA also considered potential beneficial use alternatives to the designation of open-water disposal sites. Beneficial uses include beach nourishment through direct or nearshore placement of sandy material, environmental uses such as marsh creation or bottom habitat development, along-shore fill in support of waterfront development, or upland uses such as landfill and brownfield capping and remediation. Landfill

and brownfield capping and remediation options are discussed in the preceding section on "Upland Disposal."

The most common form of beneficial use in Long Island Sound and New England in general is nourishing beaches by depositing suitable sandy dredged material on beaches adjacent to the area being dredged. Equally common is the practice of depositing clean sandy materials from hopper dredges into the nearshore littoral bar system where tidal action and currents can carry it onto beaches. However, the opportunities for beach nourishment are limited in Long Island Sound because most material generated by the region's dredging projects is not sandy and therefore is not suitable for use as beach nourishment.

Other beneficial use alternatives, such as fill for port development, are generally not of sufficient capacity to provide a regional disposal alternative, such as that needed for central and western Long Island Sound. Indeed, no opportunities for long-term regional disposal sites of this nature were identified during the EIS process. In Long Island Sound, the last such fill sites, at New Haven and Bridgeport, have long since been filled to capacity and developed for other purposes. Furthermore, such sites historically have involved the filling of tidelands, including salt marshes and intertidal flats, to create industrial space, parks, and highways. These activities are discouraged today due to their significant impact on the aquatic environment and would likely be precluded by CWA Section 404 and applicable state laws.

As explained above, however, the availability of suitable beneficial use alternatives will be considered as part of the needs assessment for any proposal to dispose of dredged material at the CLIS or WLIS sites. EPA and the Corps encourage the beneficial use of dredged materials where a need for such use exists and the dredged material is suitable for that use. It is Corps policy to consider and weigh the beneficial use potential of dredged material prior to pursuing other options, and to pursue beneficial uses if any additional cost associated with that method of disposal is justified by the benefit.

Confined Aquatic Disposal Facilities: EPA also considered confined aquatic disposal facilities as an alternative to designating open-water disposal sites. Dredged material containment facilities are a type of confined disposal consisting of a diked containment area that provides disposal capacity for either a single port or project, or for multiple ports. In these cases, intertidal and or shallow subtidal lands are diked and filled with dredged material over a period of years or decades. After filling and years of drying and consolidation, the created land is then adapted for its intended use. These facilities are typically constructed either to provide port fill for industrial development or to create parkland or wildlife habitat as the finished end use.

Another type of confined disposal facility is the creation of an island for habitat restoration purposes such as the Poplar Island site in Chesapeake Bay, which is used for disposal of dredged material from the Port of Baltimore and other Maryland harbors. This island had been almost completely lost to erosion and is now being restored as wildlife habitat by constructing a diked perimeter in the shallow water enclosing a containment area of several hundred acres. Poplar Island was created at significant cost to both the federal government and local sponsors, but was deemed necessary due to the lack of acceptable disposal alternatives in the shallow waters of the

upper Chesapeake Bay, the great distance of Baltimore and other upper bay harbors from deep ocean waters, and a lack of available upland disposal or beneficial use options in the heavily developed bay area.

There are some locations in central and western Long Island Sound at which it may be technically feasible from an engineering perspective to construct a large, regional containment facility. Such a site would need to have a large expanse of shallow water capable of being diked to form an island or a seaward extension of the shoreline. However, construction of a containment facility to accommodate the long-term needs of the region's ports and harbors, whether for port fill or other purposes, would likely require the conversion of hundreds of acres of intertidal and open-water habitat to upland habitat. Because these types of habitat are now recognized as having great ecological importance, and so many of these wetlands were lost prior to their receiving protection under federal and state environmental laws, it is highly unlikely that such containment facilities would be permitted in either Connecticut or New York.

In addition to significant environmental impacts, the creation and use of confined disposal facilities also entails substantial costs for dredging projects and their local sponsors due to the need to construct and maintain armored dikes, rehandling berths, internal distribution and drainage, and drying management, and long-term operation of the facility. The economic and environmental cost of constructing, using, and operating such containment facilities makes them impracticable for consideration as long-term regional disposal options for the large volume of suitable dredged materials generated in Long Island Sound.

The third type of containment facility is the confined aquatic disposal (CAD) cell. CAD cells are pits dredged beneath the channel or harbor bottom in shallow waters to contain dredged material. These cells are typically sized and designed to accommodate specific volumes of material from individual projects. Cells must be sized to accommodate the bulked ("dredged") volume of disposed material, as well as a cap of clean material to isolate the dredged material below. If cells are constructed beneath navigation channels, their finished elevation must also account for future dredging depths, including long-range plans for future port improvement, as the finished elevation of the cell will restrict navigation depths. While CAD cells could be constructed to accommodate material deemed suitable for open-water disposal, construction of the cells themselves generates dredged material requiring disposal, so use of these features is typically confined to disposal of material that has been determined to be unsuitable for open-water disposal. Evaluation of CAD cells and design of these features is project specific. Their high cost relative to other disposal options makes them practicable only for contaminated materials that are unsuitable for other means of disposal and should be isolated from the environment. CAD cells do not represent a long-term regional disposal option for central and western Long Island Sound.

Treatment Technologies: EPA and the Corps also evaluated the option of sediment treatment technologies, which involves methods for reducing contaminant levels in dredged material. Based on this evaluation, it was determined that these technologies are not sufficiently developed at this time to eliminate the need for substantial long-term disposal capacity provided by the CLIS and WLIS sites. No commenters proposed any specific sediment treatment technologies

that would meet that need. Contaminated dredged material that requires treatment to reduce contaminant levels before disposal would generally be found unsuitable for open-water disposal so, technically speaking, sediment treatment technologies are not really an alternative to open-water disposal. Treatment technologies can, however, potentially be used to transform contaminated sediments into material that is suitable for beneficial uses such as landfill capping, brownfields restoration, mine reclamation, and road construction.

Summary

As described above, EPA performed an evaluation of alternatives to open-water disposal and found that the capacity of alternatives to open-water disposal was not sufficient for the quantity of dredged material that is projected to be generated over the 20-year planning horizon. Nevertheless, EPA believes the information on alternatives collected through this evaluation will be useful to the Corps and states as they evaluate disposal alternatives during the review process for individual dredging project permits. Proposals for the open-water disposal of dredged material from individual projects are evaluated by EPA and the Corps on a case-by-case basis, taking into account all the alternatives available at the time of permitting. Beneficial use alternatives will be preferred over open-water disposal whenever they are practicable. Permission to use an open-water site for the disposal of dredged material can be granted only after a determination has been made that there are no practicable alternatives.

Designation of open-water disposal sites under 40 CFR Part 228 is essentially a preliminary planning measure. The practical effect of such a designation is only to require that if future ocean disposal activity is permitted under 40 CFR Part 227, then such disposal should normally be consolidated at the designated sites (33 U.S.C. 1413(b)). Designation of open-water disposal sites does not authorize any actual disposal and does not preclude EPA or the Corps from finding available and environmentally preferable alternative means of managing dredged material, or from finding that certain dredged material is not suitable for open-water disposal under the applicable regulatory criteria. Nevertheless, EPA has determined that it is appropriate to designate open-water disposal sites for dredged material in the central and western Long Island Sound now, because it is environmentally sound and it appears unlikely that feasible alternative means of managing dredged material will be available to accommodate the entire projected amount of dredged material that will be generated in this region in the future.

5. Environmental Effects

Comment letters also expressed concern that the disposal of dredged material would cause harm to the environment, including impacts on the sediment quality, physical environment, water quality, fisheries, and lobsters. Some raised the potential for cumulative and long-term effects. EPA carefully evaluated the potential for such effects as part of the EIS process. As discussed in Chapter 5 of the FEIS (see Section 5.5), the available scientific research based on years of monitoring at the disposal sites indicates that the potential for long-term impacts to the environment in Long Island Sound as the result of dredged material disposal is minimal. Section 5.2 summarizes the potential effects that have been associated with disposal, the majority of which have been shown to be temporary in nature and not to affect the long-term health of the ecosystem. Based on this evaluation, EPA believes that the preferred alternatives will not

unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems or economic potentialities. A summary of each of the primary issues raised concerning environmental effects is provided below.

Sediment Quality and Suitability

Some comments expressed concern that contaminated sediments would be disposed at the sites. As previously discussed, all dredged material proposed for disposal in the Sound has been and will continue to be subjected to MPRSA and/or CWA sediment testing requirements, including tests to determine toxicity and the potential for bioaccumulation. These requirements are described in general in several national guidance documents, and more specifically in the "Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters" (USEPA and USACE, 2004). Based on these requirements, EPA New England applies a tiered approach to evaluating dredged material for suitability for ocean disposal beginning with a chemical analysis of sediments focusing on a specific list of analytes, followed by various toxicity tests, and finally a risk-based evaluation of measured bioaccumulation. Dredged sediments that are toxic or result in unacceptable bioaccumulation are determined unsuitable for open-water disposal and must be disposed of elsewhere. Therefore, adverse effects to sediment quality as a result of dredged material disposal are unlikely. As discussed in the SMMPs, future monitoring at the sites will include consideration of potential impacts to sediment quality.

Physical Environment

Two comment letters raised specific concerns regarding potential impacts to the physical environment. The first letter raised the concern that the presence of sediment furrows may be an indication of sediment resuspension and dispersal in and near the CLIS disposal site. Long-term monitoring of the CLIS site by the DAMOS program and studies by other researchers (Poppe et al., 2002) support the conclusion in the FEIS that CLIS is a long-term depositional area. CLIS is characterized by predominantly fine-grained, cohesive sediments and relatively weak bottom currents (Poppe et al., 2002), consistent with conditions found in depositional areas. Though it is possible that small quantities of sediment can be episodically resuspended, long-term monitoring of disposal mounds at CLIS by the DAMOS program show that these mounds remain relatively stable (FEIS Appendix G-3; USACE, 2003e). In fact, detailed monitoring of the sediment-water interface at CLIS before, during, and after placement of dredged material does not support a conclusion of systematic dispersion of substantial amounts of sediment, even during major storm disturbances (FEIS Appendix G-3; USACE, 2003e).

This letter also suggested that the techniques used to evaluate previous disposal at the alternative sites (Bridgeport and Milford) may have missed the historic disposal points. The studies conducted at these sites attempted to locate historic disposal points by looking for physical evidence (mound formation) and chemical signatures. The studies were not able to identify specific disposal points using either technique. One possible explanation is that, historically, a standard disposal practice was to disperse dredged material over wider areas rather than concentrate it in mounds, as is the current practice. Another possible explanation is the migration and dispersion of material around and potentially off these sites. Either way, EPA

ruled out these two alternatives in the FEIS based in part on their having a greater potential for sediment transport.

The second letter suggests that the Corps sediment erosion and transport model (LTFATE) results discussed in the FEIS do not support the conclusion that conditions caused by a 10-year storm are not sufficient to cause appreciable erosion. As discussed in Section 5.2, the potential for erosion of dredged material deposited at each of the disposal sites was examined by assessing the current literature and the use of two sediment transport models. First, an erosion model (Grant and Madsen, 1979) that predicts the effect of waves and currents on non-cohesive sediments was applied to each site (see Section 4.6 and Appendix G-3 for results). Second, the Corps sediment erosion and transport model (LTFATE) was used to derive erosion and transport estimates for cohesive, fine-grained sediments from a mound that would be present in the site after disposal of 16 million cubic yards (12 million cubic meters) of material. Review of other data, including detailed examinations of the structure of older dredged material mounds, tidal and other current data, and sediment chemistry data, provide a clearer picture of whether dredged material mound erosion has occurred in the past at these and in similar sites. Thus, the conclusion that a 10-year storm is not sufficient to cause appreciable erosion was drawn from a review of all available information, and not just the results of one numerical model.

Water Quality

Some comments expressed concern that the disposal of dredged material would affect water quality in Long Island Sound, such as contributing to low dissolved oxygen levels in western Long Island Sound. As discussed in Section 4.7 of the FEIS, there is absolutely no evidence to suggest that the continued use of the CLIS and WLIS disposal sites will contribute to existing water quality problems, the most significant of which is low dissolved oxygen (hypoxia). The Comprehensive Conservation and Management Plan (CCMP) for Long Island Sound and total maximum daily load (TMDL) analysis for nitrogen loads to the Sound both found that dredging and dredged material disposal were not significant contributors to the hypoxia problem and as a result were not considered in nitrogen control planning and implementation. Additionally, dredged material disposal is typically limited to winter and spring, when dissolved oxygen concentrations tend to be at their highest and hypoxic conditions do not exist. Thus, EPA does not believe that dredged material disposal will significantly exacerbate or contribute to periods of low dissolved oxygen in Long Island Sound.

Some comments raised concerns about contaminant levels in the water column. Again, there is no evidence that dredged material disposal will cause any significant adverse affects to the water column. The CLIS and WLIS sites will be used only for the disposal of dredged material that has been determined to be suitable for open-water disposal by application of MPRSA criteria (40 CFR Part 227) and the "Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters." Each proposal to actually dispose of any dredged material at a designated disposal site is subject to individual permitting and these individual permit decisions are subject to state certification for compliance with state water quality standards, including applicable antidegradation provisions. (The states' antidegradation policies are found at: http://www.dep.state.ct.us/wtr/wq/wqs.pdf and http://www.dec.state.ny.us/website/ dow/togs/togs139.pdf). The Corps cannot authorize open-

water disposal of dredged material unless a state certifies that its water quality standards, including its antidegradation policy, will be met.

Based on data evaluated during development of the FEIS, including data from monitoring conducted during and after past disposal activities, no significant releases of contaminants or suspended solids are expected to occur at WLIS and CLIS as the result of dredged material disposal, nor are any dredged materials or associated water quality perturbations expected to reach any beach, shoreline, marine sanctuary, or other important natural resource area. Water and sediment quality analyses conducted at the two sites and experience with past disposal in this region have not identified any adverse water quality or ecological impacts from open-water disposal of dredged material. Baseline data supporting this conclusion is further described in the FEIS and supporting documents.

Fisheries

EPA received many comments concerning the impact of dredged material disposal on fish and shellfish. The potential impacts to fisheries in Long Island Sound from disposal of dredged material were carefully considered during preparation of the EIS. Based on this evaluation it was concluded that, although there may be short-term impacts to the fish and shellfish populations at the sites (e.g., burial of organisms, changes in benthic community structure), the available monitoring data indicate that these localized communities recover over time and that far-field and long-term impacts are negligible.

EPA reviewed all fisheries data collected by CT DEP between 1985-2000 to assess temporal trends in fish abundance throughout the Sound, including those sampling stations in close proximity to disposal sites (see Appendix H Biological Resources, specifically H-3 Essential Fish Habitat, H-4 Finfish Survey Summary Report, H-6 analysis of CT DEP Trawl data, H-9 Fishing Questionnaire and Interview Report). In addition, EPA compared the relative abundance and species richness (i.e., number of species present) of fish species collected near existing dredged material disposal sites to areas with similar depths and bottom types far removed from the disposal sites.

In general, the trend analysis showed a number of fish species declining with time, some increasing through time, and the remainder not changing. The data shows that there is fairly high inter-annual and seasonal variation in absolute abundance numbers for many species. EPA's analysis of this data found no evidence that suggests long-term dredged material disposal activity is related to long-term variations in abundance of any species, or in species richness. During the EIS process, EPA consulted with the NMFS under the Magnuson-Stevens Act to assess potential impacts to essential fish habitat (EFH), which is designated for all federally-managed fish and shellfish species (see H-3 Essential Fish Habitat Report and Appendix A Volume 2). NMFS concluded that ongoing seasonal dredging restrictions, and continuing the overview program identified in the Site Management and Monitoring Plan (see Appendix J), were sufficiently protective of EFH at the disposal sites, and no additional conservation recommendations were warranted.

Concerns also were raised about the potential for contaminants to bioaccumulate in the tissues of

fish as the result of long-term disposal of dredged material, posing a potential risk to humans and other species that consume them. As described in the discussion of human health effects, the potential for bioaccumulation is evaluated on a case-by-case basis as part of the determination of suitability for each project proposed for disposal. Sediments resulting in unacceptable bioaccumulation of contaminants, based on testing, would be determined unsuitable for open-water disposal. The FEIS concluded that the primary potential impacts to the fish community at WLIS and CLIS are likely to be short-term changes in the community as the result of alterations in food sources and habitat. No long-term impacts to finfish and shellfish from dredged material disposal have been documented in the literature (see Section 5.5.5 of the FEIS).

Based on this review of the fishery data and the potential impacts associated with dredged material disposal at the designated sites, EPA has concluded that the regulated disposal of dredged material has not, and will not, significantly impact any fishery in Long Island Sound. As such, EPA concluded in its FEIS that the site designation of CLIS and WLIS sites will not cause significant cumulative and long-term adverse impacts to fisheries resources in LIS.

Lobster

EPA received comments suggesting there was a connection between dredged material disposal and the massive die-off of lobster that began in 1999, and the more recent outbreak of shell disease. The devastating decline of the lobster fishery in Long Island Sound is due to a number of factors, but disposal of dredged material is not one of them. The 1999 lobster die-off has prompted millions of dollars in research over the past four years, the results of which have led scientists and resource managers to believe that the phenomenon was caused by a combination of factors, including increased water temperatures, low dissolved oxygen levels (hypoxia), a parasitic disease (paramoeba), and possibly pesticide runoff. At the Long Island Sound Lobster Health Symposium on March 7, 2003, researchers did not cite dredged material disposal as a possible factor in the die-off. Instead, the leading suspect, according to the researchers, is abnormally warm water temperatures in the Sound. From 1998-2000, water temperatures sometimes exceeded by nearly 4^{o}F the 71.7^{o}F generally considered the upper tolerance limit for this species. It is also worth noting that the lobster die-off began in 1999 after a decade of unprecedented increases in lobster abundance, during which the quantity of dredged material disposed and frequency of disposal activity remained stable.

As discussed in the FEIS, shell disease has been documented periodically in Long Island Sound lobsters over the last decade. In 1999, however, reports of shell disease increased significantly in eastern portions of Long Island Sound, as well as Rhode Island Sound. According to researchers, shell disease appears to be caused by a bacterial infection which has been frequently observed from Long Island Sound to Buzzards Bay, and reported as far north as Kittery, Maine (Long Island Sound Lobster Health Symposium, 2003). It is unclear why some lobsters exposed to these naturally occurring and ubiquitous bacteria develop the shell disease whiles others do not, but investigations being conducted through the Long Island Sound Lobster Research Initiative are studying the relationship between the prevalence of the disease and the abnormally warm water temperatures reported during the period 1998-2000, as well as other environmental stressors (Long Island Sound Lobster Health Symposium, 2003 and R. French, 2003). The disposal of dredged material has not been identified as a possible causative factor in the origin or

spread of shell disease.

Dredged material disposal has been occurring in Long Island Sound at the CLIS disposal site for more than 60 years and at the WLIS site for just over 20 years. Based on improved regulation and sediment testing resulting from the passage of landmark environmental statutes such as the CWA and MPRSA in the early 1970s, the quality of dredged material being disposed at these sites has improved through time. Additionally, physical modeling and the results of the DAMOS program show that the spatial extent of the impact from the disposal of dredged material is fairly limited. The lobster mortality and outbreak of shell disease occur over large spatial areas and are relatively new in the Sound. This signature is not consistent with that of dredged material disposal of limited spatial impact and improving quality over a long period of time. Thus, EPA believes that the disposal of dredged material is not a significant contributor to either of these phenomena.

Cumulative and Long-Term Impacts

EPA received some comments either questioning whether cumulative impacts from dredged material disposal were considered during development of the EIS or criticizing the cumulative and long-term impacts analysis as insufficient. The potential for cumulative and long-term impacts resulting from the ongoing disposal of dredged material was considered as part of the EIS process (Section 5.6.5) as required by the Council on Environmental Quality regulations (40 CFR 1508.25(c)). EPA concluded in the FEIS that the disposal of dredged material could result in short-term, temporary impacts, but not in significant cumulative, long-term adverse impacts.

The placement of dredged material at the disposal sites could result in topographic changes, alteration of bottom currents, burial of organisms, changes in the benthic community, and potential changes to the food web, but these changes would be short-term and limited to the confines of the designated disposal sites (Section 5.5.1 and Section 5.5.4). The FEIS also concluded that long-term impacts, such as permanent changes to the benthic community and/or increased concentrations of contaminants in the sediments or biota, were not likely, particularly with careful testing of dredged material, and monitoring and management of disposal activities.

EPA determined that CLIS and WLIS are depositional areas and that only a very limited quantity of dredged material would migrate outside the designated disposal sites (see Section 5.5.1 of the FEIS). Thus, there is little potential for dredged material to be exported from multiple disposal sites and mixed together to exert a cumulative impact. The minimal degree of material loss from the disposal sites also greatly reduces the potential for dredged material to contribute to contaminated sediments that may result from other sources, such as rivers. In turn, the contribution of other sources, such as rivers, to concentrations of contaminants in sediments within the disposal sites has been determined to be insignificant. The DAMOS program has monitored contaminant concentrations in the sediments and the benthic community in the CLIS and WLIS disposal sites and has not detected levels that pose any significant ecological or a human health risk. For this reason, among others, dredged material disposal at the designated sites could not pose a significant cumulative effect in conjunction with any other ecological or human health concerns. Finally, low dissolved oxygen concentrations and elevated contaminant concentrations in dredged material were also not deemed to be a significant cumulative effect

when considered together with the problem of periodic low dissolved oxygen concentrations in the Sound. This is because the implementation of marine construction windows by state and federal resource agencies requires that dredging occur primarily in the winter, while low dissolved oxygen concentrations occur in the Sound from mid-summer to early fall.

Based on these analyses, EPA concluded that the disposal of dredged material at CLIS and WLIS does not measurably contribute to any of Long Island Sound's documented problems (i.e. hypoxia, diseased lobsters). Thus, EPA determined that cumulative and long-term impacts resulting from dredged material disposal at CLIS and WLIS would be insignificant, due primarily to geographic and temporal considerations.

6. Endangered Species and Essential Fish Habitat

Concerns were raised in some comment letters regarding the potential impact of dredged material disposal on endangered species and essential fish habitat (EFH) within Long Island Sound. During the EIS development process, EPA consulted with the USFWS and NMFS pursuant to the Endangered Species Act (ESA) and the EFH provisions of the Magnuson-Stevens Fishery Conservation Act. Consultation under the ESA focused on whether the designation and use of any of the alternative open-water disposal sites being evaluated would jeopardize the continued existence of any federally listed threatened or endangered species or cause the destruction or other adverse modification of the critical habitat of any such species. The EFH consultation focused on whether the designation of open-water dredged material disposal sites would adversely affect any designated EFH.

In general, the CLIS and WLIS sites are located in areas that do not provide limited or unique breeding, spawning, nursery, feeding, or passage areas for living resources in Long Island Sound (see Section 4.12.3 of the FEIS). The federally listed threatened and endangered species or species of "special concern" that may traverse through the sites include: humpback, fin, and right whales; loggerhead, green, Kemp's ridley, and hawksbill sea turtles; and Atlantic and shortnose sturgeons. The occurrence of these species in the areas of the two disposal sites is rare, and is generally limited to summer and fall months when disposal activity is limited (see Section 5.5.7 of the FEIS).

On February 13, 2003, EPA initiated its ESA and EFH consultations with the NMFS and USFWS for CLIS, WLIS, and surrounding areas. With respect to the ESA, USFWS sent a letter on October 16, 2003, concurring with EPA's proposed action and stating that the designation of CLIS and WLIS was not likely to adversely affect federally listed species under its jurisdiction. NMFS, in a letter dated February 5, 2004, concurred with the findings of the EIS that designation of the disposal sites, "is not likely to adversely affect listed species under the jurisdiction of NOAA Fisheries." NMFS also noted that, "no further consultation pursuant to Section 7 of the ESA is required." Copies of these letters are provided in Appendix K of the FEIS.

With respect to EFH, in a letter dated January 28, 2004, the NMFS concurred with EPA's determination that the designation of the CLIS and WLIS disposal sites would not adversely affect essential fish habitat.

In summary, EPA concluded, and the USFWS and NMFS concurred, that the two disposal sites, if designated for disposal of dredged material meeting MPRSA criteria as described in the EIS and SMMPs, would not jeopardize the continued existence of any federally listed threatened or endangered species or cause the destruction or other adverse modification of their critical habitat, and would not cause adverse impacts to essential fish habitat.

7. Human Health Effects

As previously discussed, many public comments called for stopping the disposal of "toxic material" into Long Island Sound. Many of these letters also raised concerns about the potential health effects that dredged material disposal in the Sound could have swimmers, boaters, or consumers of fish and shellfish. Some comments suggested that disposal activities were linked to increased incidence of cancer and other illnesses, and to beach closures.

EPA's designation of dredged material disposal sites does *not* authorize the disposal of "toxic material" into the Sound, and EPA's analysis indicates that disposal site designation should have no significant effect on human health or beach closures. First, from a procedural standpoint, and as discussed in Chapter 1 of the FEIS, designation of an open-water disposal site does not authorize disposal of material from any particular source or project at any designated site. The designation of the CLIS and WLIS disposal sites simply makes those sites available if no practicable alternative to open-water disposal exists for a specific project, and if analysis of the dredged material from that project indicates that its characteristics are suitable for open-water disposal.

Second, as is also discussed in the FEIS, and below and elsewhere in this document, EPA does not believe it is accurate to suggest that the disposal site designation "authorizes" the disposal of "toxic materials" into the Sound. To the contrary, there is no scientific evidence to suggest that dredged material disposal contributes to adverse health or ecological effects, and the regulatory framework within which dredged material disposal is conducted is specifically designed to prevent such effects. As previously noted, these regulatory requirements are described in EPA's regulations at 40 C.F.R. Part 227, national guidance documents, and the "Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters." EPA applies a tiered approach to evaluating the risk posed to human health and the environment from each individual dredging project and makes a case-by-case determination of whether the dredged material is suitable for open-water disposal. Certain materials are prohibited outright from disposal by 40 C.F.R. § 227.5 (e.g., high-level radioactive material; materials produced or used for chemical, biological, or radiological warfare agents; materials insufficiently characterized to allow for appropriate analysis). For other materials, suitability for open-water disposal is determined based on chemical, physical, and, if necessary, biological effects-based analysis of the dredged material following MPRSA and/or CWA sediment testing requirements. If chemical analysis indicates that the dredged materials contain any toxic constituents regulated under 40 C.F.R. § 227.6 (including any carcinogens, see 40 C.F.R. § 227.6(a)(5)), then whole sediment toxicity testing

is conducted. If the toxicity tests are failed, then the material may not be disposed in the Sound.

If the material passes the toxicity tests, then bioaccumulation testing is conducted for particular contaminants of concern and the test results are assessed pursuant to a conservative, risk-based analysis that involves quantifying the risk to human health that would result from consuming marine organisms that were exposed to the dredged material in question using a risk assessment model. The risk-based evaluation of bioaccumulation consists of three steps: (1) comparison of bioaccumulation test results to human health-based U.S. Food and Drug Administration (FDA) Action/Tolerance Levels; (2) comparison to ecological reference effects levels available from FDA or the literature; and (3) evaluation of carcinogenic and non-carcinogenic risks to human health resulting from consumption of fish, lobster, and shellfish exposed through food chain transfers. Risks are calculated using standard exposure equations and assumptions for the consumption of fish as outlined by EPA (1989). If it is determined that the sediment is unsuitable for open-water disposal – that is that it may unreasonably degrade or endanger human health or the marine environment – then it cannot be disposed in Long Island Sound. Sediments found to be associated with elevated risks are not authorized for open-water disposal. Based on the use of these risk-based evaluations, EPA expects that contaminant concentrations in fish-tissue (and subsequent risks) will not increase in the future as a result of the placement of dredged material at the CLIS and WLIS disposal sites (see Appendix H-5 and Sections 5.2 and 5.6 of the FEIS). Therefore, EPA concludes that no significant adverse impacts to human health should result from future dredged material disposal at CLIS and/or WLIS.

Further, as discussed in the SMMPs (Appendix J of the FEIS), the goal of the management and monitoring programs for CLIS and WLIS is to track conditions at the disposal sites and to prevent any unreasonable endangerment to human health or degradation of the marine environment. The results of more than 35 years of disposal site monitoring through the Corps' DAMOS program indicate minimal environmental effects from dredged disposal at sites in Long Island Sound (Fredette and French, 2004). With continued monitoring pursuant to the SMMPs, and in light of improved monitoring capabilities, EPA believes that human health and the environment will be protected.

Finally, there is no connection between dredged material disposal and beach closures in Long Island Sound. Beaches on Long Island Sound and elsewhere are typically closed as a precaution to protect people from exposure to bacteria and pathogens associated with human and other animal fecal waste. Sources of fecal waste in recreational waters include storm water runoff, combined sewer overflows, malfunctioning sewage treatment facilities, failing septic systems, boat toilets, and swimmers (especially infants and toddlers). Furthermore, dredged material disposal in Long Island Sound is generally restricted to the period between October 1 and April 30, during which swimming and beach use in general is limited. Regardless, there is not one single documented instance where a beach or beaches have been closed as the result of dredged material disposal in the Sound.

8. Economics

More than 30 letters were received from representatives of marine trade associations, boating organizations, and shipping interests expressing their support for the disposal site designations and stressing the potential adverse economic impacts that would result from a failure to carry out periodic dredging. These concerns are borne out by the economic evaluation conducted as part of the EIS (Appendix E of the FEIS).

As demonstrated in the FEIS, the ability to dredge and affordably dispose of dredged material is critical to maintaining the large amount of navigation-dependent businesses and industries in the western and central Long Island Sound region, including commercial fishing. Through their direct, indirect, and induced impacts, navigation-related businesses on Long Island Sound (e.g., freight transportation, boat building, commercial fishing, and passenger transportation) account for more than 27,700 jobs in Connecticut and New York. These industries contribute more than $3 billion in gross state product (GSP) ($1.55 billion in Connecticut and $1.45 billion in New York), contribute more than $1.8 billion to area incomes, and produce $441 million in tax revenues in this area (USACE, 2001d; USACE, 2003b; Appendix E). Continued access to harbors, berths, and mooring areas is vital to ensuring the continued economic health of these industries, and to preserving the ability of the region to import fuels, bulk supplies, and other commodities at competitive prices. The continued ability to dredge and dispose of dredged material will preserve the significant economic benefits that these marine industries bring to the region in terms of sales, income, employment, access to goods and materials, and tax revenues.

Contrary to the comments cited above, other comments were received suggesting that the FEIS placed too much emphasis on the economic reasons for designating open-water dredged material disposal sites. EPA disagrees. Consistent with NEPA and the MPRSA, EPA considered the purpose and need for the proposed action and the effects of various alternative courses of action, including both the designation of the CLIS and WLIS disposal sites and the "no action" alternative (i.e., not designating open-water disposal sites). See 40 C.F.R. Part 227, Subpart D; and 40 C.F.R. §§ 1502.16(a) and (b), 1508.8, 1502.14(d), and 1502.13. These analyses quite properly took into account the economic ramifications of the alternatives, as well as their environmental ramifications.
Cost is also an important measure of the "practicability" of each alternative, which is clearly a relevant consideration under both NEPA and the MPRSA. Thus, EPA considered both economic and environmental/ecological considerations in its evaluation of alternatives. For example, while EPA considered the increased cost that would be associated if dredged material from the central and western portions of the Sound were required to be disposed of at a site beyond the Continental Shelf, EPA also noted the many logistical and environmental demerits to choosing such a disposal alternative as well. These demerits included greater risk of short dumps and spills due to storms or accidents, and greater risk of conflict between dredged material disposal vessels and both endangered species and other vessels.

Several comment letters were also received which expressed concern that the use of WLIS and CLIS would harm the region's economy. Starting from the misconception that the dredged material in question is "toxic," the main concerns expressed in these letters, were that: (1) the

tourism industry would be hurt because people will not want to vacation near a dredged material disposal site; and, (2) fishing will suffer serious disruption. Yet, EPA does not believe either should be a problem. As noted above, all material proposed for disposal will be tested, including undergoing toxicity testing, to ensure that it is suitable, as defined by MPRSA, for open-water disposal. In addition, it is important to note that the areas where these sites are located have been used for dredged material disposal for more than 50 years without significant negative impacts to the environment or to the tourism or fishing industries. In fact, it is reasonable to conclude that the use of these sites by marinas to affordably dispose of suitable dredged materials in an environmentally and economically sound manner has actually aided tourism and fishing by facilitating the movement and berthing of vessels.

9. Site Management and Monitoring

Comments were received suggesting that dredged material activities should be carefully monitored and evaluated to determine the potential for environmental effects *before* designating disposal sites in Long Island Sound. In fact, dredged material disposal in the Sound has been, and will continue to be, carefully monitored and evaluated. Past monitoring for site evaluation was conducted under the Corps' DAMOS program, which has produced information for use by the Corps, EPA, and other agencies and the public. Future monitoring and site evaluation will be conducted pursuant to the Site Management and Monitoring Plan (SMMP) developed by EPA and the Corps for CLIS and WLIS in conjunction with the disposal site designations.

The Corps has monitored the effects of ocean disposal of dredged material throughout New England for 35 years, producing over 190 technical reports, 80 journal or conference papers, brochures, and a video on the findings of studies on dredged material disposal (Fredette and French, 2004). The monitoring of dredged material disposal in New England was formalized in 1977 with the creation of the DAMOS program. DAMOS is a multidisciplinary environmental monitoring program whose primary purpose is to manage and monitor New England's 10 offshore dredged material disposal sites from Long Island Sound to Maine. The program responds to concerns expressed by federal and state environmental agencies in New England and the public. The earliest objectives of the program were to develop an understanding of the basic behavior of disposed sediment and its nearfield, short-term impacts. Today the program addresses longer range, cumulative impact questions, such as assessing any potential food web impacts of contaminants and fishery effects (Fredette and French, 2004).

The DAMOS program employs a tiered approach to monitoring-designed to: (1) assess compliance with disposal permit requirements; (2) provide data for model verification to check the accuracy of the predictions and assumptions underlying the tiered sampling design; and (3) identify any long-term trends in the environment that might be related to disposal activity. To accomplish its monitoring goals, DAMOS employs a wide range of tools and technology, including bathymetric surveys, side scan sonar, underwater photography, divers, sediment analysis, sediment profile photography, biological analyses, and submersible vessels. Physical, chemical, and biological measurements have permitted detection of any short- and long-term changes at disposal sites. This information is used, along with other factors, in daily permitting and management decisions concerning whether, where, and how dredged materials should be

deposited in marine waters (Fredette and French, 2004).

The monitoring conducted by DAMOS provided the initial blueprint for the WLIS and CLIS SMMPs that have been developed in conjunction with the disposal site designations. As specified in the SMMPs, the Corps will continue monitoring dredged material disposal sites, including WLIS and CLIS, following the tiered approach developed for DAMOS, but additional monitoring will also be conducted to fill any data gaps found in the program. The goal of the monitoring program for each site is to generate information that will:

1. indicate whether disposal activities are occurring in compliance with permit and site restrictions;
2. support evaluation of the short-term and long-term fate of materials based on MPRSA site impact evaluation criteria; and
3. support the assessment of any potential significant adverse environmental impact from dredged material disposal at the sites.

To achieve this goal, environmental monitoring will be conducted of both the disposal sites and nearby regions (as defined in Section 6.3 of the SMMPs). The latter information will be evaluated together with historic and ongoing dredged material testing data and other accessible and relevant databases (*e.g.,* CTDEP Sediment Quality Information Database [SQUID], USACE Dredged Material Spatial Management and Resolution Tool [DMSMART]).

As described in the SMMPs, the WLIS and CLIS disposal sites will be jointly managed by EPA and the Corps, in coordination with other relevant state and federal agencies. Agency planning meetings are planned to be held at least annually to ensure that coordination and exchange of information occurs; additional meetings may be arranged in response to unusual physical events or unexpected monitoring observations. During these meetings, the SMMPs will be reviewed and, as necessary, revised depending on current conditions and available site-specific and scientific information.

Specific details about survey efforts will be developed in project-specific survey plans, and the schedule for the monitoring surveys will be determined based on the frequency of disposal at the site, results of previous monitoring surveys, and funding resources. In addition to the annual agency meeting, a formal review of the SMMPs is planned to take place every five years, beginning from the date of designation, unless the frequency is modified during the annual agency planning meeting. EPA and the Corps also plan to inform and involve the public regarding the monitoring program and results through periodic DAMOS symposia and the publication of technical reports.

10. Dredged Material Management Plans

EPA received many comments requesting that the site designation process be completed only after the development of a regional dredged material management plan (DMMP) for Long Island Sound that would investigate all feasible alternatives for dredged material management,

including upland disposal, beneficial use, and sediment treatment, for both suitable and unsuitable dredged material from the region. At the same time, EPA also received comments to the contrary, stating that any DMMP should, instead, be initiated and developed after, or concurrent with, completion of the site designation process.

EPA and the Corps agree that a DMMP can be an important tool for the long-term management of dredging and dredged material disposal. Nevertheless, as stated in the FEIS, development of a regional DMMP is not a required part of the MPRSA site designation process, and completion of a DMMP is also neither legally nor logically required as a precursor to designating the CLIS and WLIS dredged material disposal sites under the MPRSA. A DMMP is a planning tool for assessing an area's dredged material management needs over time and identifying a range of possible management options for that material. A DMMP does not provide authorization to carry out any particular dredging project or use any particular management option. Moreover, the DMMP development process is separate from the open-water disposal site designation process under the MPRSA, and is voluntarily initiated by a state or states. Depending on the nature of the dredging projects included in a DMMP, cost-sharing agreements with the Corps may be required for such studies. EPA and the Corps do not have the statutory authority to require states to commence, participate in, or provide the funding for development of a DMMP. However, DMMPs that require inclusion of non-federal dredging projects, or studies on contaminant or sediment loading, or high-cost disposal alternatives, may require some level of non-federal funding.
Preparation of a DMMP is not a legal prerequisite to the disposal site designations because neither the MPRSA nor any other statute or regulation mandates that a DMMP be prepared prior to designation of a dredged material disposal site. Preparation of a DMMP is not a logical prerequisite to the disposal site designations because, as explained above and in the FEIS, designation of a disposal site does not actually authorize the disposal of any particular dredged material at the site. It only identifies a particular disposal site as a potential option for dredged material management. Before actual disposal of material at a designated site can be authorized, the dredged material in question must still be deemed suitable for open-water disposal, and a determination must be made that no environmentally preferable, practicable alternatives to open-water disposal exist. Thus, the absence of a completed DMMP does not excuse the requirement that management alternatives to open-water disposal be considered and utilized if practicable and environmentally preferable.

Furthermore, based on current information, there is no reason to think that consideration of management alternatives through a DMMP will yield options sufficient to obviate entirely the likelihood that open-water disposal will be needed in the future for at least some dredged material. EPA's EIS has already investigated a range of disposal, beneficial use, and treatment technology options and determined that designation of the disposal sites was needed and appropriate. While a DMMP will continue investigating the range of alternatives that may exist for handling the region's dredged material, present information indicates that these alternatives will be insufficient to accommodate all of this material over the 20-year planning period. Moreover, a DMMP cannot by itself authorize the use of any particular management alternative. For example, while a DMMP might identify potential "beach nourishment" projects for certain types of dredged material, it would not actually authorize any such project to take place. Actual

project proposals would still need to go through all applicable federal, state, and local environmental review and permitting, and might or might not ultimately be approved.

Thus, EPA's disposal site designations will not conflict with any future DMMP, they will complement it. The open-water disposal sites being designated by EPA will simply provide one management option for consideration within the DMMP. The DMMP may also identify other potential management options for certain types and quantities of dredged material. Before any dredged material will be approved for open-water disposal, it will have to satisfy the MPRSA requirements that this disposal method is needed and that the sediment is of suitable quality. If the states and federal government, through the DMMP process, identify practicable options for management of the quantity and quality of dredged material in question, then presumably that material would not be approved for open-water disposal. Alternatively, if no practicable alternatives have been identified for the quantity and quality of material in question, then that material would presumably be authorized for open-water disposal, assuming it was determined suitable under the MPRSA sediment quality criteria. Thus, designating the CLIS and WLIS disposal sites at this time does not prevent the future identification of management options through the DMMP process or the use of such options for future projects.

While a DMMP does not need to precede the disposal site designations, EPA Regions 1 and 2, the Corps' North Atlantic Division and New York and New England Districts, have plainly and consistently indicated their support for development of a DMMP for the Long Island Sound region. Consistent with this support, and subsequent to the issuance of the FEIS, the federal agencies have met with the CT DEP and NY DOS on several occasions to discuss development of a regional DMMP for the Sound and the conceptual scope for such a DMMP. As discussed at these meetings, the two states have now formally requested the Corps assistance in the development of the DMMP, and the Corps has received authority to begin working on it. The multi-agency DMMP team plans to hold public information meetings to obtain input on the scope of the DMMP in the summer or early fall. EPA, through the National Estuary Program's Long Island Sound study, has allocated funds to support public outreach during the initial stages of the DMMP process.

Development of a DMMP will build on the work done for the site designation EIS and include an in-depth planning analysis of alternatives to open-water disposal, including beneficial use, upland disposal, and treatment technologies, which will then be used to inform future individual permit and project approval decisions. To accomplish this, a DMMP would be expected to examine dredging needs, sediment and water quality, disposal alternatives and impacts on a harbor-by-harbor basis, considering both federal and non-federal dredging sources.

Several comment letters suggested that the Corps develop a 'regional' DMMP for the Sound similar to the one created for New York Harbor. These comments reflect a misunderstanding of the Corps' typical DMMP development process. Corps policy (EC -1165-2-200) requires each of its Districts to prepare a DMMP for maintaining each federal navigation project for at least 20 years. These are considered "project-specific DMMPs" and are intended to ensure that federal navigation projects can be maintained over the long-term in an environmentally acceptable, cost-effective manner, thereby optimizing the benefit of the continued investment of federal funds in

these dredging projects. Project-specific DMMPs may be prepared either for individual federal projects or for groups of geographically related federal projects. Associated non-Corps dredging needs may be considered in federal project DMMPs, but the cost of additional studies necessary to include them must be borne by non-federal interests. For clarification, the New York Harbor DMMP prepared by the Corps New York District is a project-specific DMMP, for the Port of New York and New Jersey and its tributary channels, rather than a regional DMMP. The Corps New York District created one DMMP (September 1999) for the entire New York Harbor due to the close proximity of several federal navigation projects that collectively comprise the port's system of federal channels, and which included both major port deepening projects and long-term routine maintenance dredging of most of the harbor. Instead of creating a separate DMMP for each of these federal projects, one overall DMMP was created that covers the entire project area for the Port of New York and New Jersey. This is still considered a project-specific DMMP.

The situation in Long Island Sound is different. There are more than 50 separate federal navigation projects, and an equal number of small harbors without federal projects, that together serve as the source of dredged material in the Sound. These projects are spread over the entire 65-mile length of the Sound and not all projects serve the same navigation needs. The harbors in question range from small private and municipal small-craft harbors to large commercial ports with deep-draft federal channels and numerous private access channels and berths, and government facilities. Sediment type and quality differ substantially between harbors, with some containing clean sand suitable for a wide variety of disposal and beneficial use applications, and others containing large volumes of material deemed unsuitable for open-water disposal.

The Corps would typically prepare project specific DMMPs on an individual basis as each project is considered for maintenance dredging. Thus, in the absence of a regional DMMP, the Corps would prepare individual DMMPs for all future federal maintenance and improvement dredging in the harbors of Long Island Sound. These project-specific DMMPs would examine all practicable management alternatives for that project.

Alternatively, a regional DMMP, as envisioned by the states, would examine both federal and non-federal sources of dredged material and appropriate alternatives for their disposal. New York has also requested that any regional DMMP also fully examine disposal alternatives that may not be practicable at this time. Including such studies in a DMMP would require study-cost participation from the states, which may in turn require participation from other non-federal interests benefiting from the study. Even then, the magnitude of the undertaking will likely require Congressional action to authorize the study and fund the federal share of the DMMP. It should be noted that the DMMP for the Port of New York and New Jersey, which has yet to be completed, has cost the federal government at least $25 million to date over a study period of more than eight years.

The EPA and the Corps agree with the states that a DMMP will help ensure that the long-term needs for dredged material disposal options for Long Island Sound are addressed, and in particular may help to further evaluate and potentially identify practicable long-term alternatives to open water disposal and take better advantage of any opportunities for beneficial use of

dredged material. EPA and the Corps have hosted the initial meetings with the states to develop rough study scopes and estimates, and map out the next steps for DMMP development. In the meantime, all dredged material disposal projects are required to assess all feasible alternatives including upland, beneficial use, open-water, and treatment technologies.

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APPENDIX A

CORRESPONDENCE RECEIVED DURING THE PUBLIC REVIEW PERIOD

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